* NOTICES *

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the structure of a discharge tube where the compressed gas is breathed out from the well-closed container of a closed compressor in detail, about the closed compressor formed in the refrigerant circuit etc. with which an air conditioner, refrigeration facilities, or a refrigeration facility is equipped, for example.
[0002]
[Description of the Prior Art]For example, the axis of rotation 5 is arranged inside the well-closed container 3 at the same mind, and the well-closed container 3 sets caudad the encapsulated type rotary compressor 1 which compresses a refrigerant gas as shown in drawing 2, and it is supported with the arm-shaft-horizontal receptacle 7 and the lower-shaft receptacle 9, enabling free rotation. The rotor 11 is being fixed above the axis of rotation 5. The stator 13 is fixed to the periphery side by the wall of the well-closed container 3 via a predetermined crevice to this rotor 11. The upper and lower sides of this stator 13 are adjoined, and the coil motor 15 is fixed and is provided.
[0003]Said lower-shaft receptacle 9 and the arm-shaft-horizontal receptacle 7 are carrying out discoid with the hole which the axis of rotation 5 penetrates, it is inserted into each of these disc-like bearings 7 and 9, and the two cylindrical cylinders 17 and 19 are arranged via the diaphragm 21 at the same mind. Eccentricity of the shape of said axis of rotation 5 in the inside of these cylinders 17 and 19 is carried out to the axial center of the axis of rotation 5, and the cylindrical roller 23 is arranged at a periphery. If the axis of rotation 5 rotates by this, eccentric rotation of each roller 23 will be carried out respectively, performing rotation which rolls in contact with the wall of the cylinders 17 and 19.
[0004]Falcate space is formed between the roller 23 and the cylinders 17 and 19, in the blade which protruded elastically and which is not illustrated, by dividing into two, either serves as an

inhalatorium and another side serves as compression space from the cylinders 17 and 19 in falcate space. The eccentric rotation of a rotor follows an inhalatorium on progressing, and space volume increases it. Eccentric rotation follows on progressing, space volume decreases, and compression space performs a pressing operation.

[0005]The suction opening 25 is formed in the cylinders 17 and 19, respectively, an inlet chamber is attended, and a refrigerant gas is further inhaled from the accumulator 29 of the exterior of the well-closed container 3 via the suction pipe 27. The delivery 31 is formed in the cylinders 17 and 19, respectively, compression space is attended, and it is connected to the piping 33 further for regurgitation, and it bypasses, is led to the inside of the well-closed container 3, and is further breathed out outside via the discharge tube 35.

[0006]Thus, as for the conventional closed compressor 1, motor elements (the rotor 11, the stator 13, etc.) and compression elements (the cylinders 17 and 19, the roller 23, a blade, etc.) are stored inside the well-closed container 3.

[0007]And with the axis of rotation 5 which rotates with a motor element, a compression element works and a refrigerant gas is compressed. Although the compressed refrigerant gas is led to the inside of the well-closed container 3, will be mixed with the oil used for the lubrication of a compression element.

[0008]

[Problem(s) to be Solved by the Invention]however, the refrigerant gas which was compressed according to the above Prior art is in the state where it mixed with the oil used lubriciously, inside the well-closed container 3, and if it is breathed out outside through a discharge tube as it is, the oil used lubriciously will also be breathed out as it is, and it will produce various inconvenience.

[0009]For example, when the gas compressed is a refrigerant gas, oils other than a refrigerant will circulate to a refrigerant circuit, and it will be an impurity. The lubricating oil for the compression element in a well-closed container decreases, and a possibility of causing trouble lubriciously arises. Although the conventional closed compressor produced discharge pulsation in the breathed-out compressed gas, since both ends were opened wide as for the conventional discharge tube, the damping effect of pulsation was not able to be expected.

[0010]The gas by which a compressor is compressed not only in a rotary compressor as for the above technical problem exists not only in a refrigerant gas but similarly.

[0011]This invention was made in order to solve the above technical problem, and an object of an invention is to provide the discharge tube of the closed compressor which can separate the lubricating oil contained in compressed gas, and can decrease discharge pulsation.

[0012]

[Means for Solving the Problem]In order to attain the above purpose, a compression element driven with a motor element stored by well-closed container this invention, After compressing

gas inhaled from the outside of a well-closed container and leading this compressed gas to an inside of a well-closed container, in said discharge tube of a closed compressor which carries out the regurgitation outside through a discharge tube, an end by the side of an inside of a well-closed container of said discharge tube was blockaded, and two or more stomata were provided in this end.

[0013]

[Embodiment of the Invention]Hereafter, one embodiment of this invention is described using drawing 1. This drawing 1 is equivalent to the upper part of drawing 2 in which conventional technology is shown. The same numerals are given to the same portion as drawing 2.

[0014]The discharge tube 35 is penetrated and formed in the upper part of the well-closed container 3. The end 37 by the side of the inside of a well-closed container of this discharge tube 35 is blockaded using the plate 39. Two or more stomata 41 are formed in the circumference of this end 37. As for the sum total cross-section area of the stoma 41, it is desirable to exceed the cross-section area of the discharge tube 35. The things large as much as possible of the number of the stomata 41 are desirable.

[0015]If the axis of rotation rotates and a compression element works with a motor element, the refrigerant gas inhaled from the outside of the well-closed container 3 will be compressed, will serve as the compressed gas 43, and will be led to the inside of the well-closed container 3 through the piping 33. The drawn compressed gas 43 goes up, for example through the crevice between the rotor 11 and the stator 13, etc., and arrives at the upper part of the well-closed container 3. At this time, since the compressed gas 43 passes along a crevice with a small compression element, it will be in the state where it mixed with the lubricating oil.

[0016]Thus, the compressed gas 43 having contained the lubricating oil passes two or more stomata 41 of the discharge tube 35. The lubricating oil contained in compressed gas at this time cannot pass along the stoma 41 easily, and adheres to the circumference of the stoma 41, i.e., the outer wall of the discharge tube 35. That is, to compressed gas, since specific gravity is large, a lubricating oil tends to produce adhesion.

[0017]The adhering lubricating oil serves as the drop 45 soon, and is dropped under the well-closed container 3 inside. Therefore, separation of compressed gas and a lubricating oil is performed. As a result, it is deterred that a lubricating oil is breathed out in the exterior of the well-closed container 3. The quantity of the lubricating oil which carries out the lubrication of the mechanical sliding part of a compression element by this is prevented from decreasing.

[0018]When the compressed gas 43 passes the stoma 41, the pulsating-pressure force component which the compressed gas 43 has declines. Namely, by a passage sectional area being extracted when the compressed gas 43 passes the stoma 41, the flow of the compressed gas 43 changes and it will be in a laminar flow state from the turbulent flow condition having contained the pulsating-pressure force component till then. A pulsating-

pressure force component declines at this time. This attenuation is produced by what is called a punching metal effect. Thus, discharge pulsation decreases and the breathed-out compressed gas 43 deters vibration and noise of piping along which the compressed gas 43 passes after that.

[0019](Other embodiments) In an above embodiment, although the closed compressor was the encapsulated type rotary compressor 1, Even if it does not necessarily restrict to a rotary compressor in other embodiments but is a reciprocating compressor and a scroll compressor, If the compressed gas 43 which the motor element and the compression element are stored by the well-closed container 3, and was compressed into it is a closed compressor breathed out outside through the discharge tube 35, it is possible to carry out this invention.

[0020]Although compressed gas was a refrigerant gas in an above embodiment, it is not necessary to necessarily compress a refrigerant gas in other embodiments, and air may be compressed.

[0021]In an above embodiment, although perforation processing of two or more stomata 41 was directly carried out to the circumferential wall of the end of the discharge tube 35 and it was formed, many stomata may be provided by attaching a mesh (wire gauze) etc. to the end of the discharge tube 35 in other embodiments.

[0022]

[Effect of the Invention]As explained above, according to this invention, since the lubricating oil contained in compressed gas is adhered and divided into the outer wall of a discharge tube when compressed gas passes the stoma provided in the discharge tube, it can deter that a lubricating oil will be discharged outside.

[0023]When compressed gas passes the stoma of a discharge tube, the discharge pulsation of compressed gas declines. Vibration and noise of piping along which the breathed-out compressed gas passes by discharge pulsation declining by what is called a punching metal effect decrease.

[Translation done.]